

**REMARKS:****Claims 1-4**

Claims 1-4 have been rejected under 35 USC 112, second paragraph, as being indefinite. Claim 1 has been amended in a manner believed to correct the lack of antecedent basis for the “third pole” element. Claims 1 and 2 have also been amended to make the “electrically conductive coil” element consistent throughout the claims.

**Claims 1-4**

Claims 1-4 have been rejected under 35 USC 102(b) as being anticipated by Wu et al. (US6239948).

Claim 1 has been amended to require that material has been removed from the third pole for defining its thickness, the thickness of the third magnetic layer at its air bearing surface being less than its thickness at all points along the length of the coil-registry location. Support for this amendment is found in FIGS. 4 and 11, and related description in the present application.

In sharp contrast, Wu does not remove material from the pole of the upper layer (26). See Wu FIGS. 4 and 5. Nowhere does Wu teach or suggest that material is removed from the upper layer at the ABS. Accordingly, each and every limitation of the claim is not shown in Wu.

Reconsideration and allowance of claim 1 is respectfully requested.

Claims 2-4 depend from claim 1 and so are also believed to be allowable due to their dependence.

**Claims 1, 3-5, 7-8**

Claims 1, 3-5 and 7-8 have been rejected under 35 USC 102(b) as being anticipated by Chen et al. (US5652687).

Claim 1 has been amended to require that material has been removed from the third pole for defining its thickness, the thickness of the third magnetic layer at its air

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bearing surface being less than its thickness at all points along the length of the coil-registry location. Support for this amendment is found in FIGS. 4 and 11, and related description in the present application.

In sharp contrast, Chen does not remove material from the pole of the upper layer. See Chen FIGS. 5, 7, 8A, 9A, 20-22 and 28. Nowhere does Chen teach or suggest that material is removed from the upper layer at the ABS. Accordingly, each and every limitation of the claim is not shown in Chen.

Reconsideration and allowance of claim 1 is respectfully requested.

Claims 3-4 depend from claim 1 and so are also believed to be allowable due to their dependence.

Claim 5 has been amended to require that material has been removed from the third pole for defining its thickness, the thickness of the third magnetic layer at its air bearing surface being less than its thickness at all points along the length of the coil-registry location. Support for this amendment is found in FIGS. 4 and 11, and related description in the present application.

In sharp contrast, Chen does not remove material from the pole of the upper layer. See Chen FIGS. 5, 7, 8A, 9A, 20-22 and 28. Nowhere does Chen teach or suggest that material is removed from the upper layer at the ABS. Accordingly, each and every limitation of the claim is not shown in Chen.

Claims 7-8 depend from claim 5 and so are also believed to be allowable due to their dependence.

#### Claims 1-8

Claims 1-8 have been rejected under 35 USC 103(a) as being unpatentable over Applicants' admitted prior art (AAPA) FIGS. 2-3 and associated discussion in view of Matono et al. (US 2002/0030930).

Applicants respectfully disagree that the combination proposed in the rejection would render the claims obvious.

The analysis of obviousness was set forth in *Graham v. John Deere*, 383 U.S. 1,

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148 USPQ 459 (1966). In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

First, there must be some *suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings of the references. Second, there must be a reasonable *expectation of success*. Finally, the prior art reference or combined references must teach or suggest *all* the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success *must both be found in the prior art*, and not based on applicant's disclosure (*In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991; emphasis added).

Applicant respectfully disagrees that AAPA and Matono would suggest or motivate one skilled in the art to combine the teachings of AAPA and Matono to create Applicants' head, particularly as claimed. Applicants first note that the invention is an improvement for heads of the type shown in AAPA FIGS. 2-3. These heads have three pole tips, the third pole tip being wider than the immediately adjacent pole tip, thereby giving the pole tips a T-shape as viewed from the ABS. The T-shape allows the second pole tip to be made very narrow for writing very narrow tracks. The claimed structure, having a reduced thickness at the pole tip, reduces incidence of corner writing and cracking of the overlying aluminum oxide insulation.

The claimed invention is an improvement over AAPA. Accordingly, the AAPA does not teach or suggest the proposed modification, absent the teachings in Applicants' disclosure.

Matono not only fails to teach or suggest modification of AAPA, but appears to teach away from such a modification. A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). Matono indicates that the first portion (13A) of the second magnetic layer (13) has a "constant width equal to the write track width, and includes the pole portion." See

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Matono paragraphs 0064 and 0017. The constant width of the upper pole is said to prevent magnetic flux saturation in the middle of the magnetic path and prevent data from being written/erased in regions where data is not supposed to be written, even at smaller track widths. See Matono paragraph 0016. Matono teaches that the benefits are obtained when the upper layer (that covers the coils) has the same width as the gap layer width. Accordingly, by stating that the benefits are obtained by the uniform width of the upper layer (13) and write gap layer (9), Matono teaches away from forming a T-shaped structure as shown in AAPA, in prohibition of *In re Geisler*.

Matono goes on to state that the first portion (13A), write gap layer (9), and at least part of the bottom pole layer (8) have an equal width. See Matono paragraph 0066. Modifying the AAPA upper layer (70) to mimic Matono's layer (13) would not result in the claimed T-shape at the ABS. See for instance Matono FIG. 6B, showing how the width is reduced even from deposition width. Accordingly, there is no motivation to modify the AAPA upper layer (70) based on Matono's very narrow layer (13), else the claimed T-shaped structure would not be found.

Further, if Matono's very narrow upper layer (13) were added to AAPA, thereby replacing layers 60 and 70 of AAPA, none of the benefits of the T-shaped structure would be achieved in the resultant head. Thus, there is no reasonable expectation of success, at least with respect to the benefits provided by the claimed invention.

Further, assuming arguendo that motivation to modify AAPA based on Matono were found, then the motivation would be to modify the second layer (60, 64) of AAPA. This is because Matono indicates that the upper layer must have the same width as the write gap, as noted above. In AAPA, only the second layer (60, 64) has the same width as the write gap layer (58). Therefore, Matono could only be considered to suggest reducing the thickness of the second layer (60, 64) of AAPA. However, the second layer (60, 64) of AAPA is the main flux emitting layer. Reducing the thickness of the second layer (60, 64) of AAPA would result in either less flux being emitted across the write gap (and consequently lower data overwrite property), or more parasitic flux coming out of the third pole tip (72) (resulting in more side writing). Thus, one skilled

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in the art would not be motivated to make the proposed modification to AAPA based on Matono, as to do so would result in a head that operates more poorly than that shown in either AAPA or Matono.

Nor has the Examiner provided a reasonable motivation based on knowledge generally available to those skilled in the art and not provided by Applicants in the present disclosure.

“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” Ex parte Clapp, 227 USPQ 972, 973 (Bd.Pat.App.&Inter.1985).

Here, the Examiner has indicated that the motivation is that one of skill in the art would have modified the AAPA upper layer because Matono's reduced thickness prevents magnetic flux from being saturated in the middle of the magnetic path and prevents data from being written and erased in areas where data is not supposed to be written (as noted in Matono paragraph 16). However, Matono's pole (13) is adjacent the gap (9). There is no suggestion in Matono or AAPA that reduction of the AAPA upper layer (70) would provide any benefits if not positioned *immediately* over the write gap layer as in Matono, much less that reducing the thickness of the AAPA upper layer (70) would prevent magnetic flux from being saturated in the middle of the magnetic path and prevent data from being written and erased in areas where data is not supposed to be written.

Nor is there any suggestion in Matono or AAPA that Matono's layer (13) would provide any benefits if positioned over an intermediate pole tip. Matono's layer (13) at the pole has the same width as the write gap (9). To add Matono's narrow layer over the writing pole tip (P2) of AAPA FIGS. 2-3 would result in a very tall and unstable structure, making the entire structure likely to break off during subsequent processing.


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As noted in the present application, the wider third pole (as claimed) supports the writing pole, thereby allowing stable fabrication of an ultra-narrow writing pole (P2).

For any of the reasons set forth above, the combination of AAPA with Matono does not meet the *Graham* test, and the rejection is improper. Allowance of claims 1-8 is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 971-2573. For payment of any additional fees due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-2587 (Order No. SJO920000097US1).

Respectfully submitted,

By:   
Dominic M. Kotab  
Reg. No. 42,762

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Zilka-Kotab, PC  
P.O. Box 721120  
San Jose, California 95172-1120  
Telephone: (408) 971-2573  
Facsimile: (408) 971-4660

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